# HYPERLOOP: CONNECTING THE GREAT LAKES MEGAREGION

Business Advisory Council
June 28, 2019

Grace Gallucci
Executive Director
Northeast Ohio Areawide Coordinating Agency (NOACA)

# FEASIBILITY STUDY

# PARTNERS

## Feasibility Study Funding Commitments

NORTHEAST OHIO AREAWIDE COORDINATING AGENCY
Lake
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Cuyahoga
Lorain
Medina
NOACA: Planning For Greater Cleveland

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CLEVELAND foundation

OHIO TURNPIKE

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Planning For GREATER CLEVELAND

# PARTNERS

## Hyperloop Collaborators

Illinois Department of Transportation

indiana TOLL ROAD

50 YEARS TMACOG 1968 - 2018

SPC Southwestern Pennsylvania Commission

Erie County OHIO ...where resources abound

EASTGATE Regional Council of Governments

FHWA

NASA

DESTINATION Cleveland

NEO Sustainable Communities Consortium

GREAT LAKES Science Center Stay Curious.

TeamNEO

NOACA Lake Geauga Cuyahoga Lorain Medina Planning For GREATER CLEVELAND

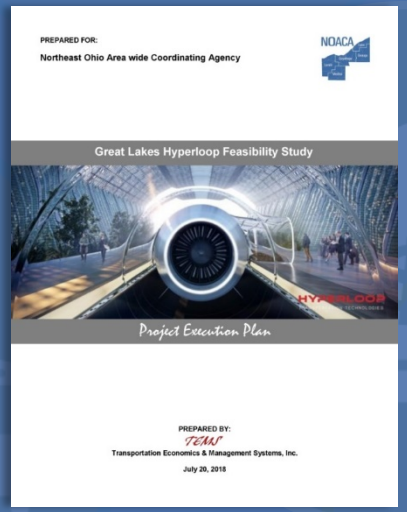
# PROJECT SCOPE

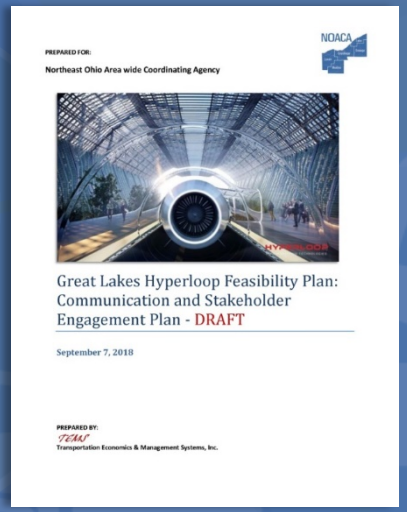
Four Phases

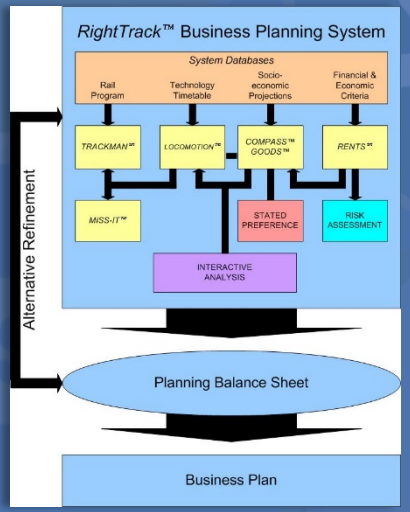
- Project Objectives and Organization
- Site Reconnaissance and Preliminary Route Analysis
- Technical and Financial Feasibility
- Project Development Cost and Schedule

# PHASE 1: PROJECT OBJECTIVES AND ORGANIZATION

- Project Execution Plan
- Communications and Stakeholder Engagement Plan
- Business Planning Process

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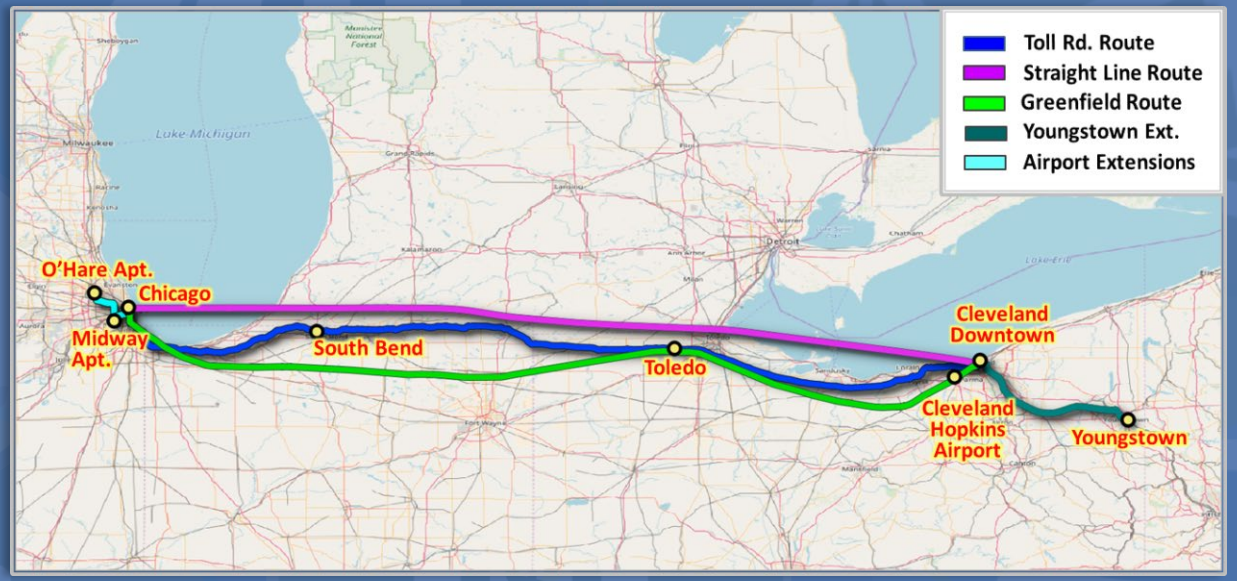
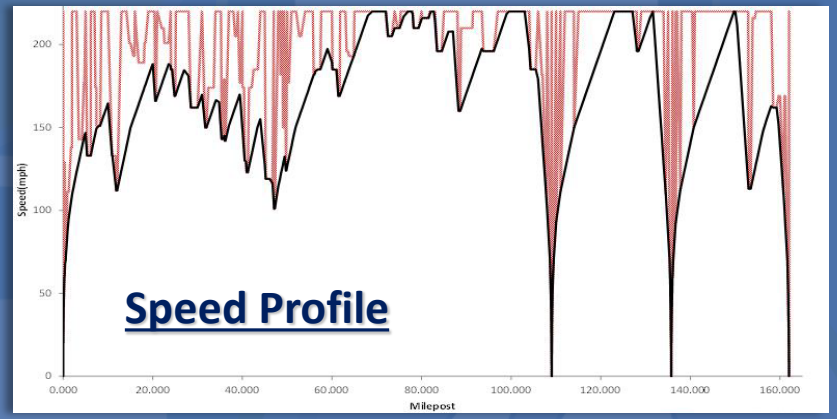
# PHASE 2: SITE RECONNAISSANCE AND PRELIMINARY ROUTE ANALYSIS

**TRACKMAN™ will identify the capital costs for each route.**




**TRACKMAN™ and LOCOMOTION™ will assess the speed of Hyperloop technology along different routes.**

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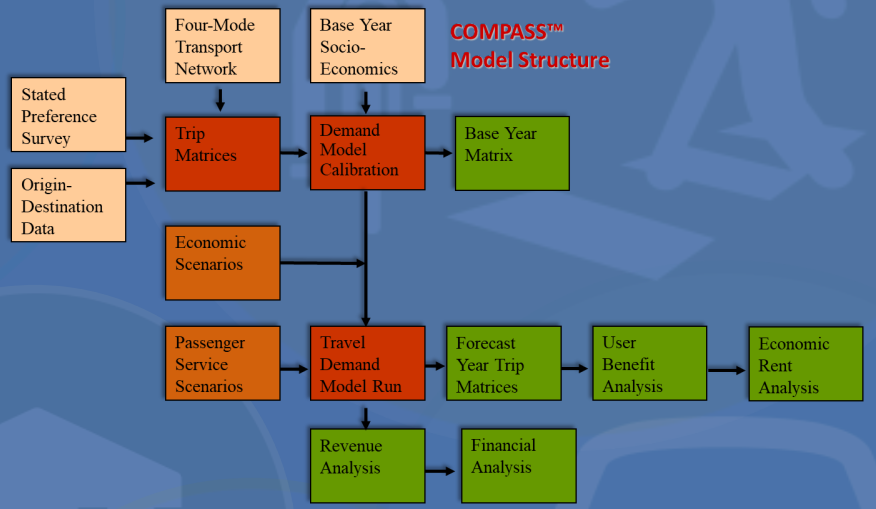
# PHASE 3: TECHNICAL AND FINANCIAL FEASIBILITY

## Financial Analysis

| Thousands of 2006 $ | Total to 2040 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| **Revenues** | | | | | | | |
| Ticket Revenue | **$1,080,230** | $13,567 | $25,107 | $28,659 | $29,422 | $30,185 | $30,948 |
| On Board Services | **$86,418** | $1,085 | $2,009 | $2,293 | $2,354 | $2,415 | $2,476 |
| Express Parcel Service (Net Rev) | **$54,011** | $678 | $1,255 | $1,433 | $1,471 | $1,509 | $1,547 |
| *Total Revenues* | **$1,220,660** | $15,331 | $28,371 | $32,385 | $33,247 | $34,109 | $34,971 |
| **Train Operating Expenses** | | | | | | | |
| Energy and Fuel | **$75,081** | $2,013 | $2,013 | $2,013 | $2,013 | $2,013 | $2,013 |
| Train Equipment Maintenance | **$204,890** | $5,494 | $5,494 | $5,494 | $5,494 | $5,494 | $5,494 |
| Train Crew | **$96,367** | $3,323 | $3,323 | $3,323 | $3,323 | $3,323 | $3,323 |
| On Board Services | **$80,631** | $1,833 | $2,295 | $2,437 | $2,467 | $2,498 | $2,528 |
| Service Administration | **$147,171** | $5,075 | $5,075 | $5,075 | $5,075 | $5,075 | $5,075 |
| *Total Train Operating Expenses* | **$604,139** | $17,738 | $18,200 | $18,342 | $18,372 | $18,403 | $18,434 |
| **Other Operating Expenses** | | | | | | | |
| Track & ROW Maintenance | **$114,663** | $3,954 | $3,954 | $3,954 | $3,954 | $3,954 | $3,954 |
| Station Costs | **$40,547** | $1,398 | $1,398 | $1,398 | $1,398 | $1,398 | $1,398 |
| Sales & Marketing | **$51,009** | $643 | $1,190 | $1,358 | $1,394 | $1,429 | $1,465 |
| Insurance Liability | **$43,345** | $549 | $1,015 | $1,158 | $1,188 | $1,218 | $1,248 |
| *Total Other Operating Expenses* | **$249,564** | $6,544 | $7,557 | $7,868 | $7,934 | $7,999 | $8,065 |
| **Total Operating Expenses** | **$853,703** | $24,283 | $25,757 | $26,210 | $26,306 | $26,402 | $26,498 |
| **Cash Flow From Operations** | **$366,957** | ($8,952) | $2,614 | $6,175 | $6,941 | $7,707 | $8,473 |
| **Operating Ratio** | **1.43** | 0.63 | 1.10 | 1.24 | 1.26 | 1.29 | 1.32 |

## Market Analysis




## Hyperloop Oriented Development

## Cost Benefit Analysis

| Benefits | Billions in 1998 dollars |
|---|---|
| MWRRS User Benefits | |
| Consumer Surplus | $6.4 |
| (e.g., time savings expressed as dollars) | |
| System Revenues | $6.8 |
| Other Mode User Benefits | |
| Airport Congestion Relief | 0.7 |
| Highway Congestion Relief | 1.3 |
| Resource Benefits | |
| Air Carrier Operating Cost Reductions | 0.4 |
| Emission Reductions | 0.3 |
| Total Benefits | $15.9 |
| Costs | |
| Capital | $4.1 |
| Financing | 0.2 |
| Operating and Maintenance | 5.0 |
| Total Costs | $9.3 |
| Ratio of Benefits to Costs | 1.7 |

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# PHASE 4: PROJECT DEVELOPMENT
# COST AND SCHEDULE

- Conceptual Cost Estimate
- Design Build Readiness
- Project Schedule
- Project Implementation Strategies



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# KEY DELIVERABLES

- A comprehensive intercity travel market analysis for the base and forecast years.
- An assessment of potential routes and stations.
- Potential operating schedules and costs on different routes and for different stopping patterns.
- Both a financial and economic analysis of potential options and their ability to meet USDOT funding requirements.
- Output of community benefits.
- Preparation of a Business Plan report.

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# PUBLIC SUPPORT

# PUBLIC ENGAGEMENT

## The Hyperloop Experience

- April 6-8 in Tower City
- Virtual reality experience engaging the public
  - To get a sense of what hyperloop travel would feel like
  - To experience moving through a hyperloop station
- Participants completed pre- and post-experience surveys
- 412 people participated

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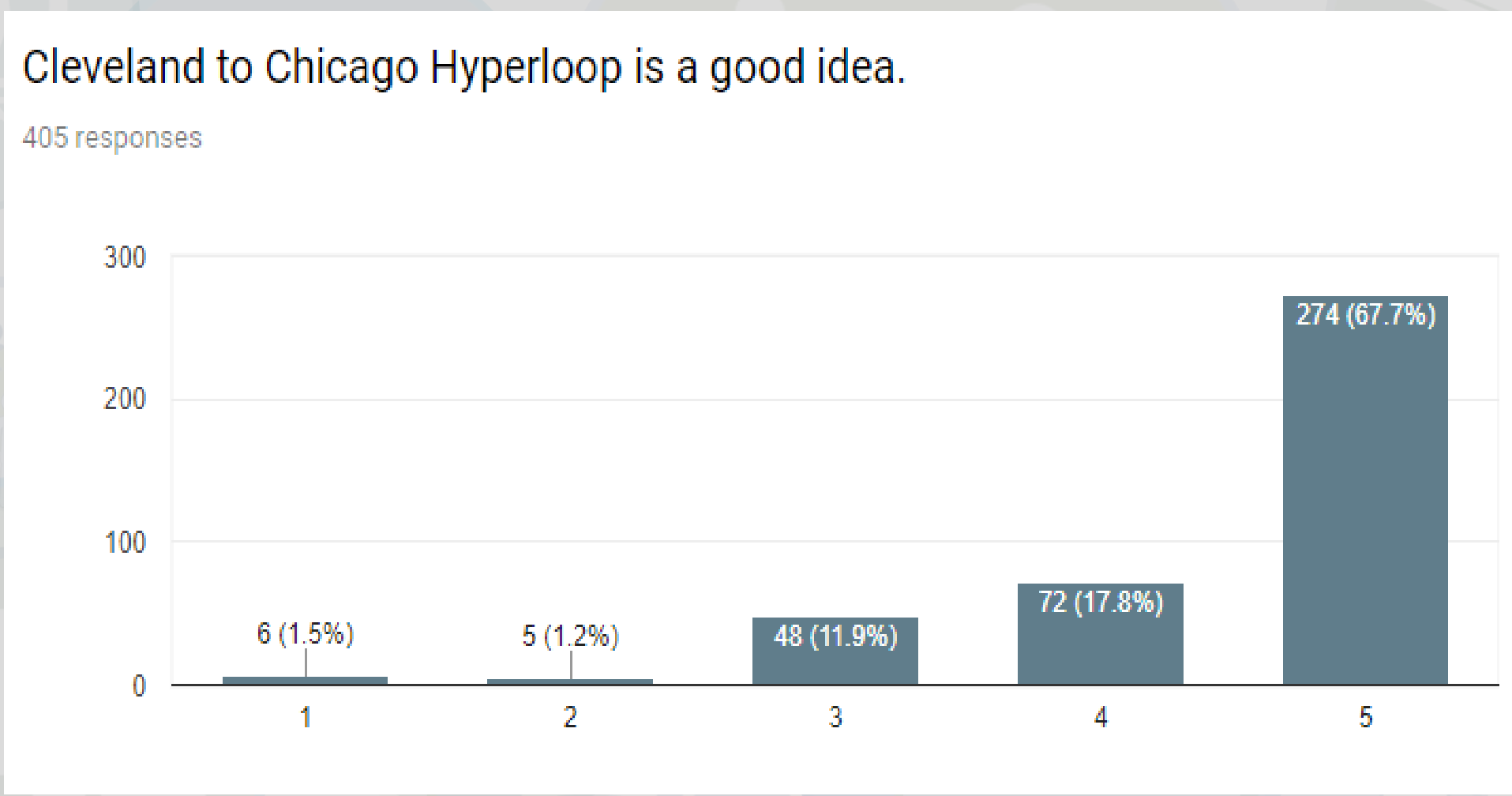


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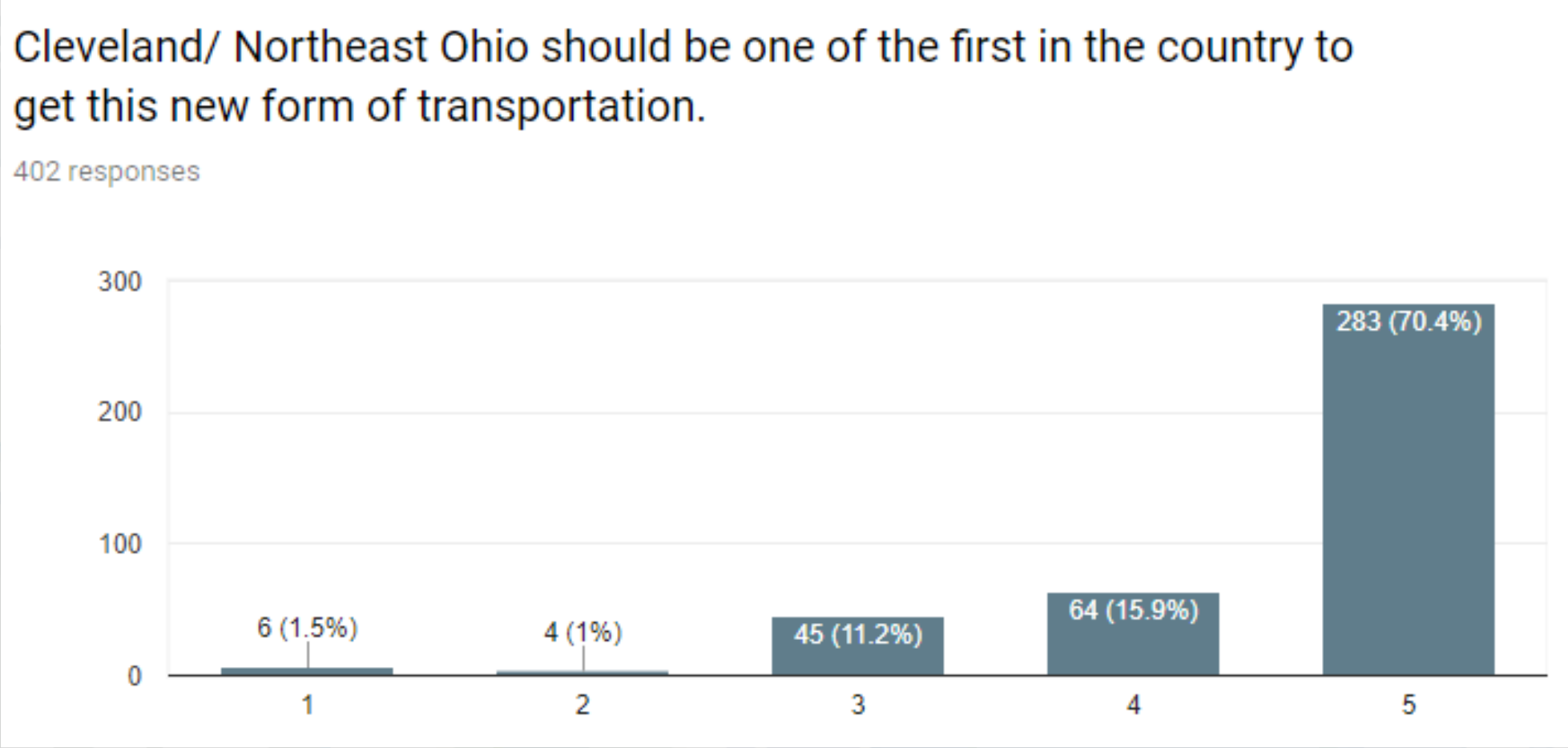


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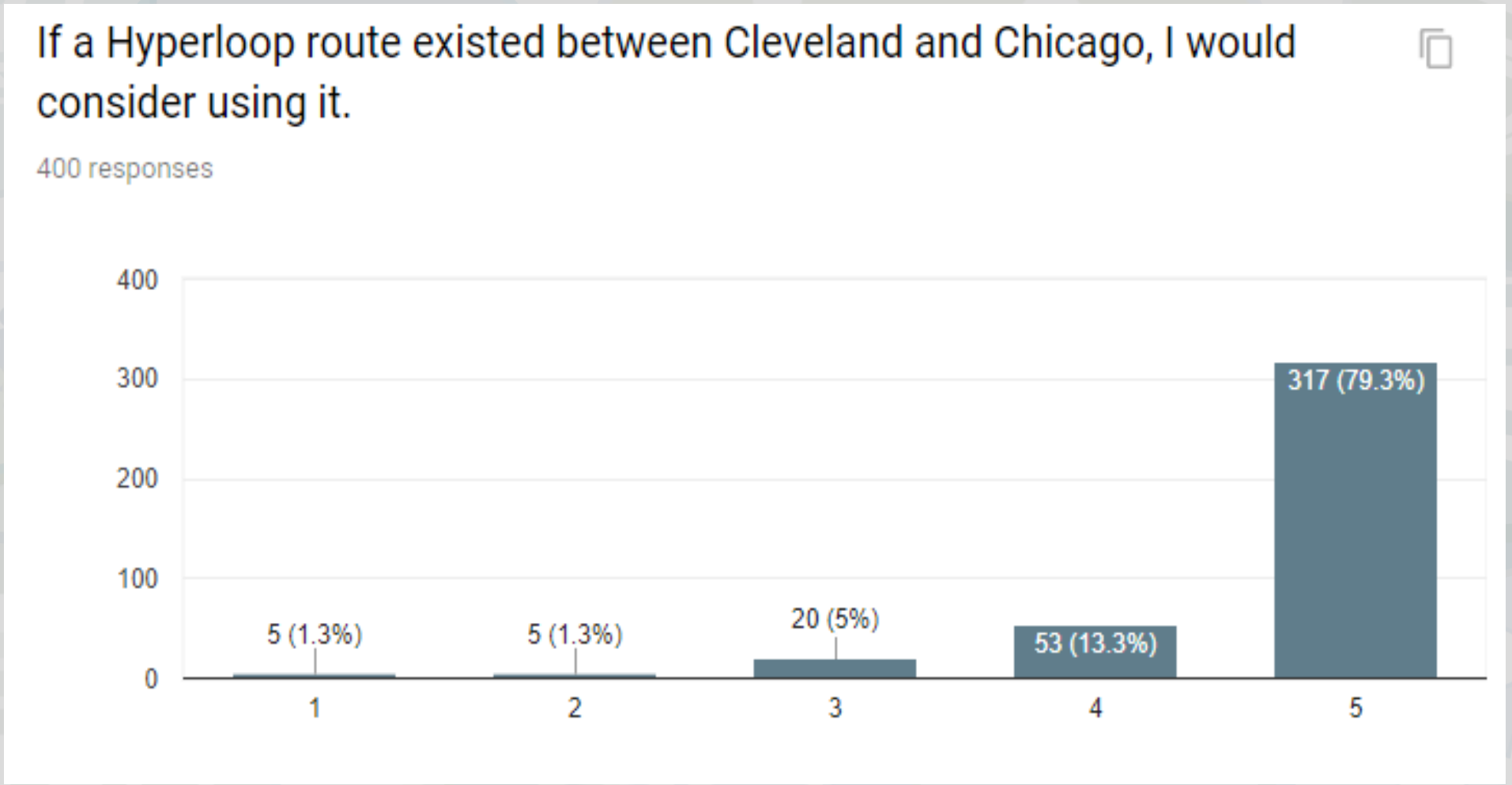


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# PUBLIC ENGAGEMENT

When I think of Hyperloop, words that comes to mind are…


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